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ORIGINAL ARTICLE

The genus *Leptocera* from China, with description of a new species (Diptera: Sphaeroceridae)

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Abstract The genus *Leptocera* (Diptera: Sphaeroceridae) from China is reviewed. A new species, *L. guangxiensis* **sp. nov.** from Guangxi, is described and illustrated. *L. ovata* Su is considered as the synonym of *L. salatigae* (De Meijere). A key to Chinese species of *Leptocera* is provided.

Key words Diptera, Sphaeroceridae, *Leptocera*, new species.

1 Introduction

The genus *Leptocera* Olivier, 1813 currently contains 64 species in the world, and is one of the most common collected sphaerocerid genera. The Palaearctic fauna (17 spp.) were reviewed in detail by Roháček (1982, 1993) and Roháček and Papp (1983), and the Nearctic fauna (27 spp.) were reviewed by Buck and Marshall (2009). The Oriental fauna (10 spp., personal statistics), the Afrotropical fauna (11 spp. personal statistics) and the Australasian fauna are lack of thorough revision, besides Roháček's (1983) discussion on the Oriental species of the *Leptocera nigra* group.

Before 2011, four species, *L. fontinalis*, *L. nigrolimbata*, *L. paranigrolimbata*, and *L. salatigae*, were reported from China (Tibet, Taiwan) (Duda, 1925; Papp, 1984). Su (2011) provided a key to the genus in China, including 8 new species and 3 redescribed species, *L. fontinalis, L. sterniloba* and *L. nigra.* In this paper, a new species, *L. guangxiensis* **sp. nov.**, is described and illustrated. *L. ovata* Su is considered as the synonym of *L. salatigae* (de Meijere) based on the description and genetalia illustrations. A key to the Chinese species of *Leptocera* is provided.

2 Materials and methods

The specimens were collected using sweep nets. Abdomens of males and females are removed from specimens and macerated in hot 10% KOH. Abdomens macerated using KOH were rinsed first in cold water and then in acidified water (10% acetic acid) to neutralize remaining KOH. Dissections of specimens were placed in glycerin and mounted in genitalia vials underneath specimens for long-term storage. The materials examined (types) are deposited in the Entomology Museum of China Agricultural University (CAU), Beijing.

General terminology follows Cumming and Wood (2009), and sphaerocerid terminology follows Buck and Marshall (2009).

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3 Taxonomy

Leptocera Olivier, 1813

Leptocera Olivier, 1813: 489. Type species*: Leptocera nigra* Olivier, 1813, by monotypy.

Lotomyia Lioy, 1864: 1116. Type species: *Limosina arcuata* Macquart, 1835 (= *Leptocera fontinalis* (Fallén, 1826)), subsequent designation by Roháček, 1982: 3 (synonymy).

Paracollinella Duda, 1924: 166. Type species: *Copromyza fontinalis* Fallén, 1826, subsequent designation by Richards, 1930: 267 (synonymy).

Skottsbergia Enderlein, 1938: 650. Type species: *Skottsbergia cultellipennis* Enderlein, 1938, by monotypy.

General characters. Frons with two pairs of orbital bristles and 3–4 pairs of interfrontals and 1 minute bristle in front of them. Facial tubercle small to moderately developed. Scutum with 3 long, postsutural and 2–3 presutural dorsocentral bristles, which become gradually smaller and more hair-like anteriorly. Scutellum large, rounded triangular, usually with 4 pairs of marginal bristles and bare disc. Mid trochanter with a strong upcurving anteroventral bristles near apex. Mid tibia with preapical ventral bristle and lacking apicoventral bristle. Male basitarsus with strong ventral bristle near base. Male cerci present and free from epandrium. Surstylus divided into anterior and posterior section (Buck & Marshall, 2009; Roháček, 1982).

Biology. The larvae of most species probably develop in the soil or decaying vegetation (Roháček, 1982).

Distribution. Worldwide. The adult *Leptocera* occur in a wide variety of habitats from arctic tropical climates, ranging from sea level to altitudes of about 4 100 m (Buck & Marshall, 2009).

Key to the species of *Leptocera* from mainland of China (males) (modified from Su, 2011).

1. Scutum with 1–2 rows of medial acrostichals enlarged; male sternite 5 shorter and without posterior process (Figs 3, 7, 27) 2
   Scutum without enlarged medial acrostichals; male sternite 5 long and with 2 posterior processes (Figs 15, 23) 10
2. Mid tibia with two proximal posterodorsal bristles subequal in length 3
   Mid tibia with one proximal posterodorsal bristles distinctly longer than anothers 6
3. Surstylus with usually long, finger-like process arising from membranous region between anterior and posterior section..................
   .... ***L. spinisquama* Su**
   Surstylus without process arising from membranous region between anterior and posterior section (Figs 2, 6, 26) 4
4. Two longer interfrontals; sternite 5 with numerous long soft pale hairs in desclerotized posteromedial area (Fig. 3); posterior section of surstylus lacking strong bristle close to apex (Fig. 2) .... ***L. fontinalis* (Fallén)**
   One longer interfrontals; sternite 5 with sparse short hairs in desclerotized posteromedial area (Fig. 7); posterior section of surstylus with strong bristle close to apex, with fine tip (Fig. 6) 5
5. Posterior surface of surstylus with 3 long bristles .... ***L. longiseta* Su**
   Posterior surface of surstylus with numerous bristles (Fig. 6)... ***L. guangxiensis* sp. nov.**
6. Surstylus with unusually long, finger-like process arising from membranous region between anterior and posterior section............. 7
   Surstylus without process arising from membranous region between anterior and posterior section.............. ***L. anguliprominens* Su**
7. Mid tibia with distinctly short posteroapical bristles, cercus comma-shaped... ***L. lala* Su**
   Mid tibia with long posteroapical bristles, cercus not comma-shaped 8
8. Cercus long, outer edge of sclerotized part with fairly large microtrichia (Figs 25–26), apical of cercus truncate (Fig. 25); surstylus with anterior process of anterior section long and slender (Fig. 26)... ***L. truncate* Su**
   Cercus short, outer edge of sclerotized part without fairly large microtrichia, apical of cercus truncate; surstylus with anterior process of anterior section long and slender... 9
9. Surstylus with anterior process of anterior section hairy and rounded apically... ***L. angusta* Su**
   Surstylus with anterior process of anterior section bare and boot-shaped apically... ***L. obunca* Su**
10. Sternite 5 with complex lobes (with inner process) on each side of posteromedial emargination spinulose (Fig. 23) ....
    ....***L. sterniloba* Roháček**
    Sternite 5 with simple lobes on each side of posteromedial emargination spinulose (Fig. 15)... 11
11. Anterior section of surstylus with extremely reduced anterior process, ventral lobe divided by shallow notch into a smaller anterior and a larger posterior part.. ***L. nigra* Olivier**
    Surstylus with anterior process of anterior section flat, ventral lobe fairly produced but with few and relatively short bristles (Fig. 14) .... ***L. salatigae* (De Meijere)**

Leptocera anguliprominens **Su, 2011**

Leptocera anguliprominens Su, 2011: 52.

Distribution. China (Ningxia, Shaanxi).

Leptocera angusta **Su, 2011**

Leptocera angusta Su, 2011: 53–54.

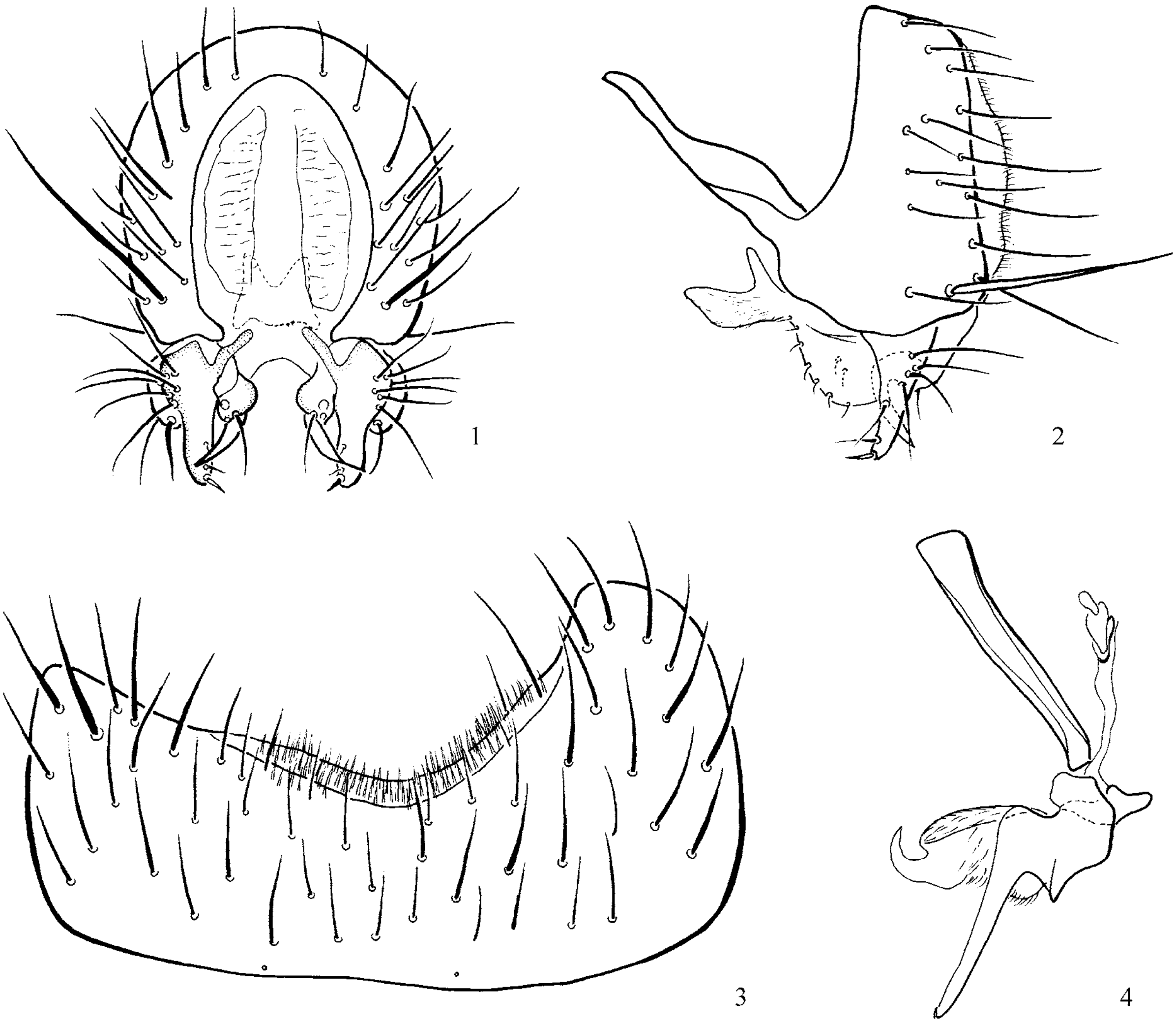
Distribution. China (Sichuan).

Leptocera fontinalis **(Fallén, 1826)** (Figs 1–4)

Copromyza fontinalis Fallén, 1826: 16.
Limosina arcuata Macquart, 1835: 572.

Material examined. 3♂, 1♀, Shaanxi, Foping, Liangfengya, 2006 July 26, Yan-Jun Zhu.

Distribution. China (Shaanxi, Xinjiang, Tibet), Canada, USA, Afghanistan, Andorra, Austria, Azores (?) (Portugal), Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Faeroe Is. (Denmark), Finland, France, Georgia,



Figs 1–4. *Leptocera fontinalis* (Fallén), male. 1. Genitalia, caudal view. 2. Genitalia excluding aedeagal complex, lateral view. 3. Sternite 5. 4. Aedeagal complex, lateral view.

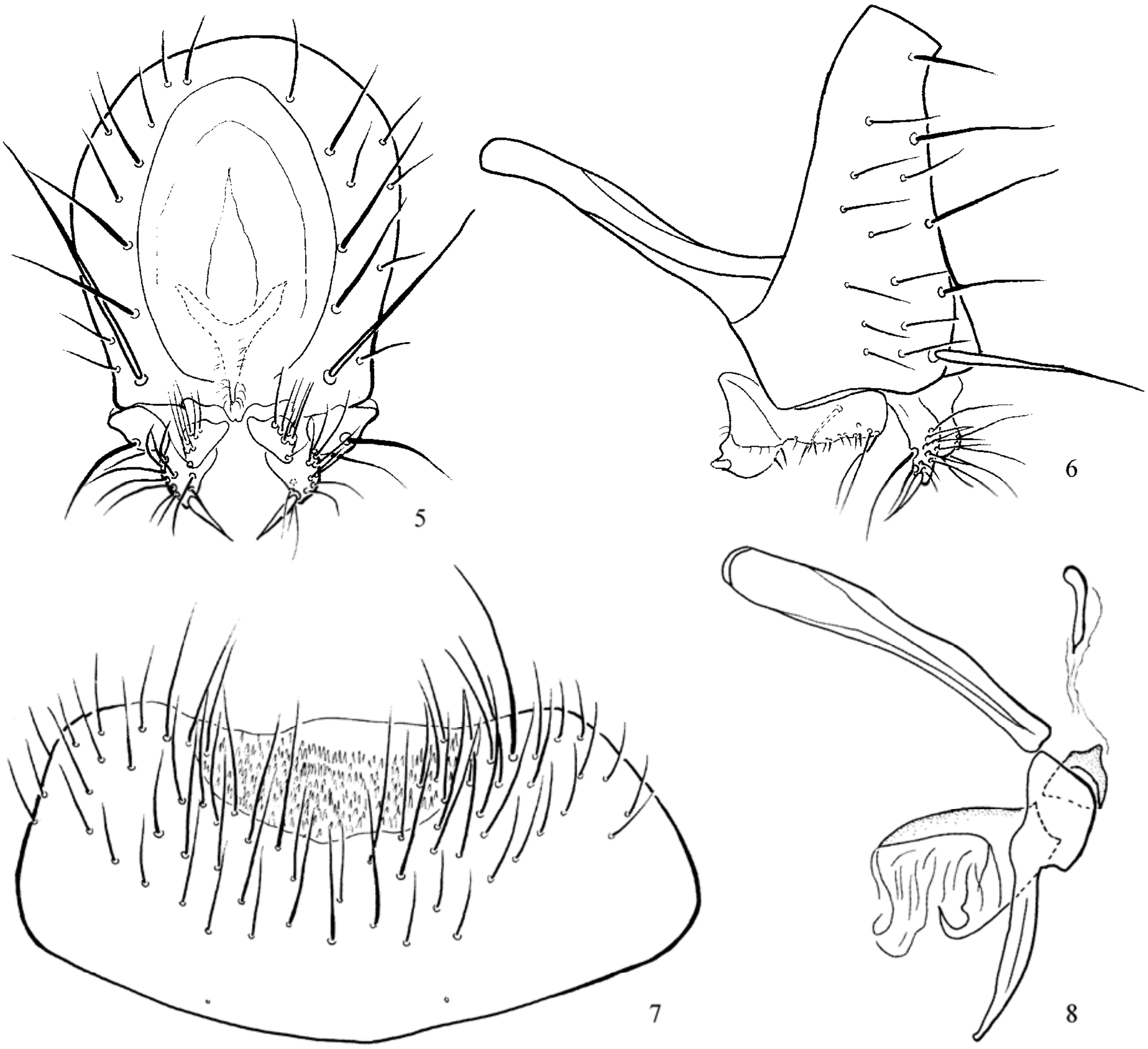
Germany, Great Britain, Greece, Hungary, Iceland, Ireland, Israel, Italy, Latvia, Lebanon, Lithuania, Kazakhstan, Macedonia, Malta, Montenegro, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Tunisia, Turkey, Ukraine, Uzbekistan.

***Leptocera guangxiensis* sp. nov.** (Figs 5–12)

Male. Body length 1.8 mm, wing length 2.0 mm.

Head dark brown. Face dark brown, pruinose; frons dark brown with silvery pruinosity, dark part of frons M-shaped; gena brown, with pruinosity. Antenna yellowish brown; pedicel darker at base; first flagellomere brownish, as long as wide; arista long, aristal cilia longer than that of first flagellomere. Four pairs of interfrontals, with second one longest; 2 pairs of orbital bristles, anterior orbital bristle slightly 0.5 times shorter than posterior orbital bristle, 1.2 times longer than first interfrontal; 1 pair of genal bristle, small.

Thorax black, brown pruinose. Scutellum 1.5 times wider than long, with 4 pairs of scutellar bristles. Anterior katepisternal bristle thinner and shorter than posterior one. Legs yellowish brown. Mid tibia with 1 ventral bristle at middle, 3 short anterior bristles subapically, and 2 bristles ventrally. Mid tarsomere 1 with 1 ventral bristle at basal 1/3. Wing pale;



Figs 5–8. *Leptocera guangxiensis* **sp. nov.**, male, holotype. 5. Genitalia, caudal view. 6. Genitalia excluding aedeagal complex, lateral view. 7. Sternite 5. 8. Aedeagal complex, lateral view.

costa darker. Costa terminating at tip of R4+5; R4+5 strongly bent towards costa at apical half; costal hairs long and sparse; Cs2 1.6 times as long as Cs3; dm-cu 1.6 times as long as r-m. Halter brown, knob dark brown.

Abdomen dark brown. Sternite 5 (Fig. 7) rectangular, with small postermedial field of enlarged microtrichia. Epandrium (Figs 5–6) with moderately long bristles ventrally. Surstylus (Fig. 6) with anterior process of anterior section rounded apically and with small darkened anterior point; ventral lobe with short hairs only besides long posterior bristles. Posterior section of surstylus with strong bristles near apex, with fine tip; posterior surface of surstylus with numerous bristles. Cercus simple. Aedeagal complex (Fig. 8) with slender phallapodeme, wider at apical 1/2; postgonite with narrow posterobasal notch.

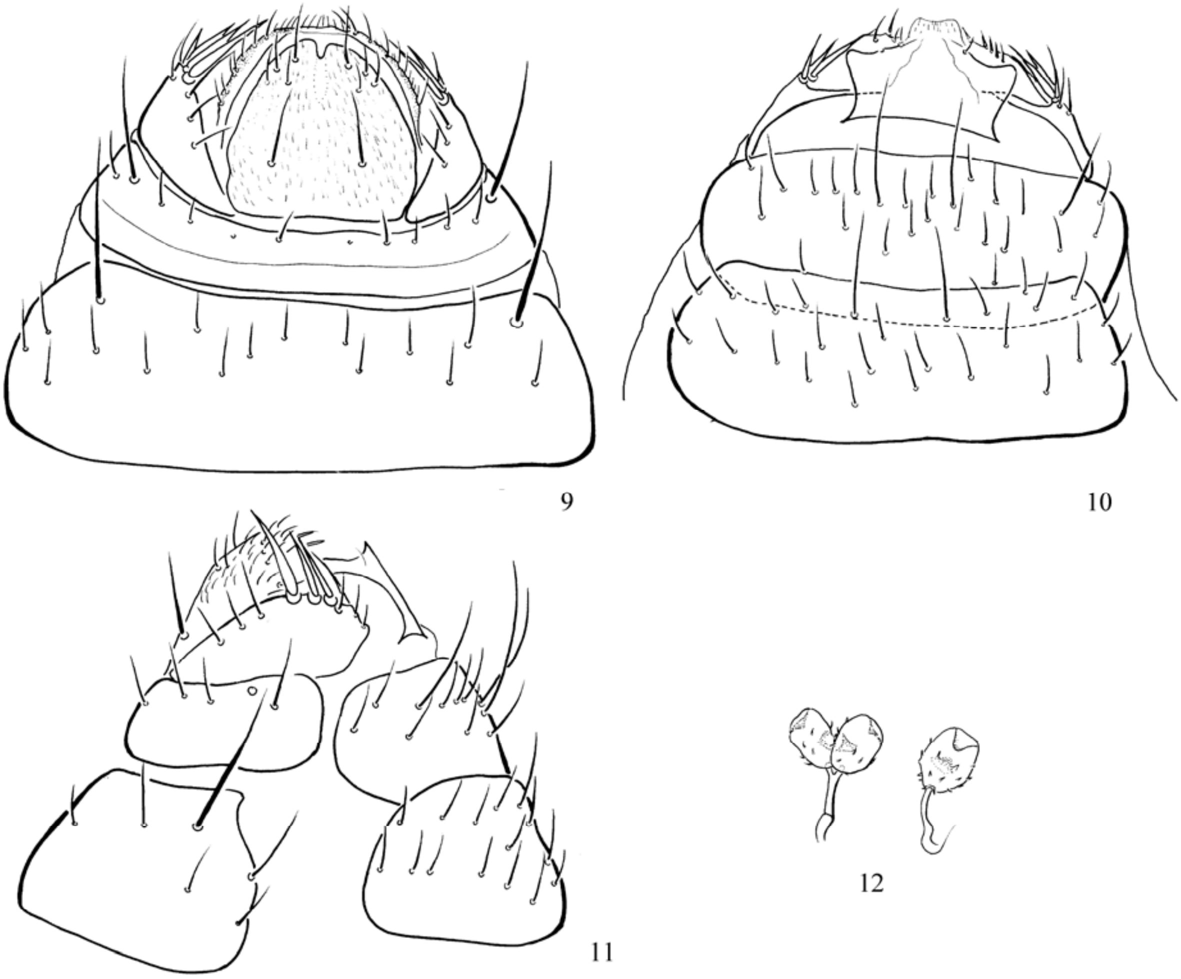
Female. Body length 1.8 mm, wing length 1.9 mm. Hind margin of sternite 7 straight (Figs 10–11); sternite 8 (Fig. 10) with lateral margins angulate, median process wide. Spermathecae (Fig. 12) subcylindrical, with scattered spicules, narrow but fairly deep apical invagination; surface weakly striate.

Material examined. Holotype ♂, China, Guangxi, Maoershan, Sanjiangyuan, 2005 Augest 9, Ya-Jun Zhu. Paratype 1♀, same data as holotype.

Etymology. The specific name refers to the type locality, Guangxi.

Distribution. China (Guangxi).

Remarks. This new species is closely related to *Leptocera longiseta* Su, 2011, but differs from it by the posterior surface of the surstylus with numerous bristles. The latter has 3 long bristles on the posterior surface of the surstylus.



Figs 9–12. *Leptocera guangxiensis* **sp. nov.**, male, paratype. 9. Postabdomen, dorsal view. 10. Postabdomen, ventral view. 11. Postabdomen, lateral view. 12. Spermathecae.

***Leptocera lala* Su, 2011**

Leptocera lala Su, 2011: 56.

Distribution. China (Hainan).

***Leptocera longiseta* Su, 2011**

Leptocera longiseta Su, 2011: 58.

Distribution. China (Qinghai).

***Leptocera nigra* Olivier, 1813**

Leptocera nigra Olivier, 1813: 489.
Limosina curvinervis Stenhammar, 1855: 406.
Limosina roralis Rondani, 1880: 37.

Distribution. China (Jilin, Liaoning), Botswana, Cameroon, Cape Verde Is., Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Ruanda-Burundi, South Africa, Zaire, Venezuela, India, Nepal, Pakistan, Algeria, Afghanistan, Andorra, Armenia, Austria, Azores, Belgium, Bulgaria, Canary Is. (Spain), Croatia, Cyprus, Czech Republic, Dalmatia, Denmark, Egypt, Finland, France, Georgia, Germany, Great Britain, Greece, Hungary, Iran, Ireland, Israel, Italy, Japan, Jordan, Latvia, Lebanon, Lithuania, Macedonia, Madeira (Portugal), Malta, Montenegro, Morocco, Netherlands, North Korea, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, Tunisia, Turkey, Uzbekistan; Saint Helena.

***Leptocera nigrolimbata* Duda, 1925**

Leptocera (Paracollinella) nigrolimbata Duda, 1925: 60.

Distribution. China (Taiwan), India, Nepal, Russia.

***Leptocera obunca* Su, 2011**

Leptocera obunca Su, 2011: 66.

Distribution. China (Guangxi).

***Leptocera paranigrolimbata* Duda, 1925**

Leptocera (Paracollinella) paranigrolimbata Duda, 1925: 61.

Distribution. China (Taiwan), India.

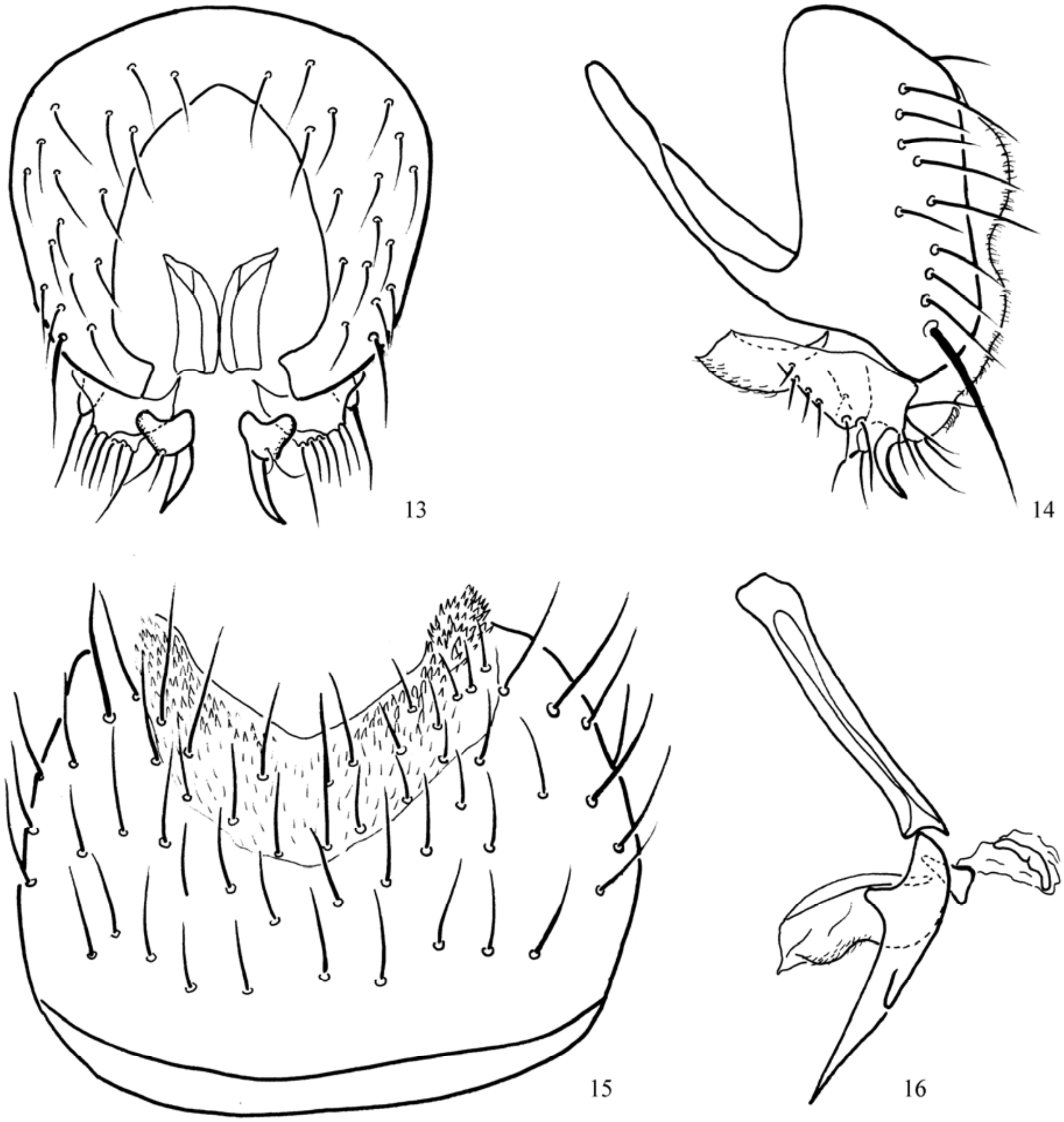
***Leptocera salatigae* (de Meijere, 1914)** (Figs 13–20)

Limosina salatigae de Meijere, 1914: 269.
Leptocera (Paracollinella) parafulva Duda, 1925: 54.
Limosina (Paracollinella) saegeri Vanschuytbroeck, 1959: 74.
Leptocera ovata Su, 2011: 64. **syn. nov.**

Material examined. 1♂, 2♀, Hebei, Chengde, Wulingshan, 2006 July 3, Hui Dong; 7♂, 2♀, Hebei, Chengde, Wulingshan, 2006 July 3, Yin-Xia Liao; 2♂, 1♀, Hebei, Chengde, Wulingshan, 2006 July 3, Shan Huo; 4♂, Hebei, Chengde, Wulingshan, 2006 July 4, Yin-Xia Liao; 2♂, 3♀, Hebei, Chengde, Wulingshan, 2006 July 4, Yu-Si Cui; 1♂, Beijing, Miyun, Yunmengshan, 2006 July 6, Hui Dong; 1♀, Shaanxi, Zhouzhi, Banfangzi, 2006 July 20, Ya-Jun Zhu; 1♀, Shaanxi, Foping, Dadianzi, 2006 July 25, Ya-Jun Zhu; 2♂, 3♀, Shaanxi, Foping, Liangfengya, 2006 July 26, Ya-Jun Zhu; 1♂, Shaanxi, Foping, Xigou, 2006 July 27, Ya-Jun Zhu; 1♂, Shaanxi, Yangxian, Shanwangmiao, 2006 July 30, Ya-Jun Zhu; 11♂, 7♀, Henan, Anyang, Linzhou, Shibanyan County, 2006 July 23, Shan Huo; 1♂, 1♀, Henan, Anyang, Linzhou, Shibanyan County, 2006 July 23, Jun-Hua Zhang; 2♂, 1♀, Henan, Huixian, Guanshan, Sanchahe, 2006 July 26, Jun-Hua Zhang; 2♂, 1♀, Henan, Jiyuan, Wangwushan, 2006 July 30, Jun-Hua Zhang; 4♂, 1♀, Hunan, Yueyang, Dongtinghu, Caisanghu, 2007 October 19, Qi-Fei Liu; 1♂, 1♀, Hunan, Yueyang, Dongtinghu, Caisanghu, 2007 October 20, Qi-Fei Liu; 1♂, Hunan, Yueyang, Dongtinghu, Junshandao, 2007 October 22, Kui-Yan Zhang;1♀, Hunan, Yueyang, Dongtinghu, Junshandao, 2007 October 22, Shan Huo; 3♂, 5♀, Hunan, Yueyang, Dongtinghu, Dingzidi, 2007 October 21, Shan Huo; 1♀, Hunan, Yueyang, Dongtinghu, Caisanghu, 2007 July 1, Kui-Yan Zhang; 1♀, Sichuan, Baoxing, Jiajinshan, Nanpo, 3 340–4 112 m, 2006 July 30, Xing-Yue Liu; 1♂, Sichuan, Qingchengshan, 1998 August 20, Ding Yang; 1♀, Yunnan, Tengchong, Jietouxiang, 1 500 m, 2006 July 17, Ya-Jun Zhu; 1♀, Yunnan, Longling, Xiaoheishanzhan, 1 800 m, 2006 May 16, Ya-Jun Zhu.

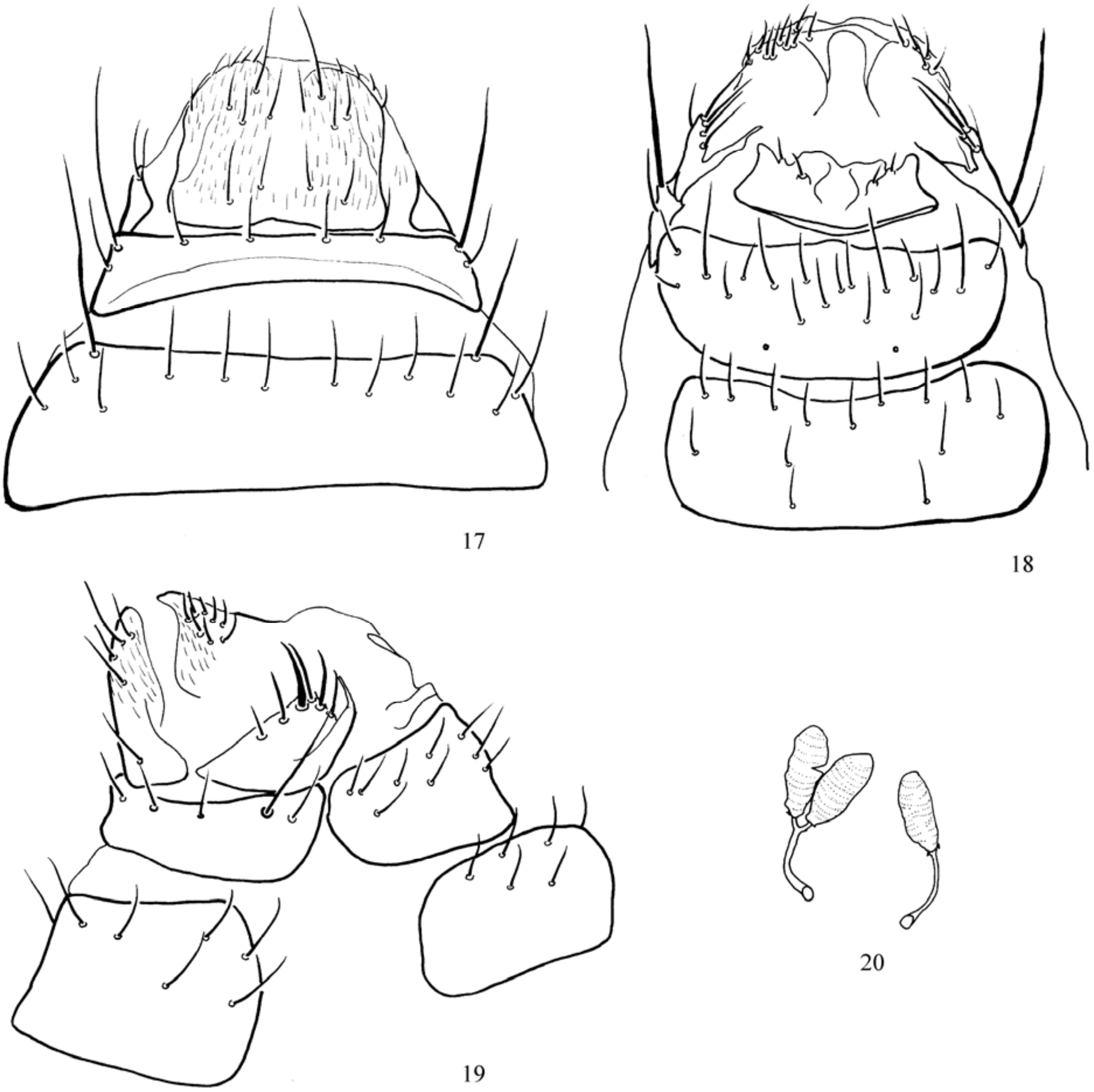
Distribution. China (Hebei, Beijing, Shaanxi, Henan, Hunan, Sichuan, Yunnan, Taiwan), Burkina Faso, Cabo Verde Is., Ghana, Guinea, Kenya, Madagascar, Malawi, Mozambique, Nigeria, Seychelles, Sierra Leone, South Africa, Uganda, Zaire, American Samoa, Australia, New Caledonia, Papua New Guinea, Samoa i Sisifo, Tonga; India, Indonesia, Nepal, Pakistan, Philippines, Srí Lanka, Thailand, Vietnam, Japan.

Remarks. *Leptocera ovata* Su was firstly described in the revision of Sphaeroceridae from China (Su, 2011) and



Figs 13–16. *Leptocera salatigae* (de Meijere), male. 13. Genitalia, caudal view. 14. Genitalia excluding aedeagal complex, lateral view. 15. Sternite 5. 16. Aedeagal complex, lateral view.

considered to be distinguished from *L. nigra* Olivier by the mid tibia with 1–2 postero-dorsal bristles, the surstylus with the anterior part cone-shaped and posterior part slightly slender. However, based on the original description and genitalia illustrations of *L. ovate* and L. *salatigae*, we considered these species conspecific since the male genitalia are identical.

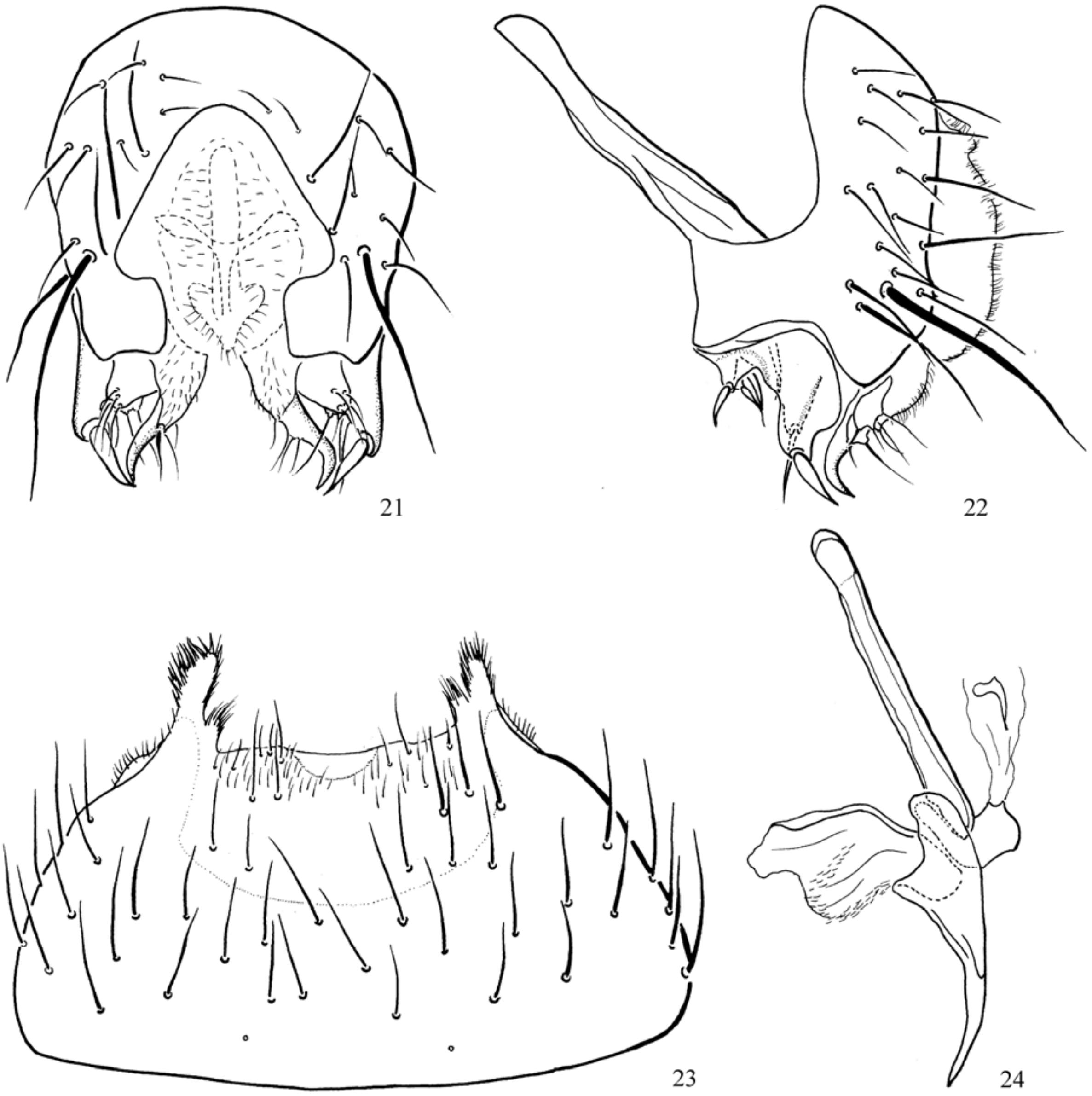


Figs 17–20. *Leptocera salatigae* (de Meijere), female. 17. Postabdomen, dorsal view. 18. Postabdomen, ventral view. 19. Postabdomen, lateral view. 20. Spermathecae.

Leptocera sterniloba **Roháček, 1983** (Figs 21–24)

Leptocera(Leptocera) sterniloba Roháček, 1983: 143.

Material examined. 3♂, 1♀, Hebei, Chengde, Wulingshan, 2006 July 3, Hui Dong; 2♂, 4♀, Hebei, Chengde, Wulingshan, 2006 July 4, Hui Dong; 1♂, Beijing, Miyun, Yunmengshan, 2006 July 6, Yin-Xia Liao; 1♂, Beijing, Miyun, Yunmengshan, 2006 July 6, Yin-Xia Liao; 1♀, Yunnan, Longling, Xiaoheishan Station, 1 800 m, 2006 May 16, Ya-Jun Zhu; 10♂, 3♀, Yunnan, Tengchong, Jietouxiang, 2006 May 17, 1 500 m, Ya-Jun Zhu; 1♂, Yunnan, Tengchong, Jietouxiang, 2006



Figs 21–24. *Leptocera sterniloba* Roháček, male. 21. Genitalia, caudal view. 22. Genitalia excluding aedeagal complex, lateral view. 23. Sternite 5. 24. Aedeagal complex, lateral view.

May 18, 1 500 m, Ya-Jun Zhu; 2♂, Yunnan, Jietou, Shabacun, 2006 May 18, Ya-Jun Zhu; 2♂, 1♀, Yunnan, Tengchong, Zizhicun, 2006 May 19, Xing-Yue Liu; 1♀, Yunnan, Baoshan, Baihualing, Jiujiezi, 2006 May 24, Ya-Jun Zhu; 1♂, 2♀, Yunnan, Lvchun, Huanglianshan, Yakou Conservation Center, 2006 May 22, Jun-Hua Zhang; 1♀, Yunnan, Kunming, Songhuaba Reservoir, 2006 May 19, Gang Yao.

Distribution. China (Hebei, Beijing, Yunnan, Hainan), India, Nepal, Thailand, Vietnam.

Leptocera spinisquama **Su, 2011**

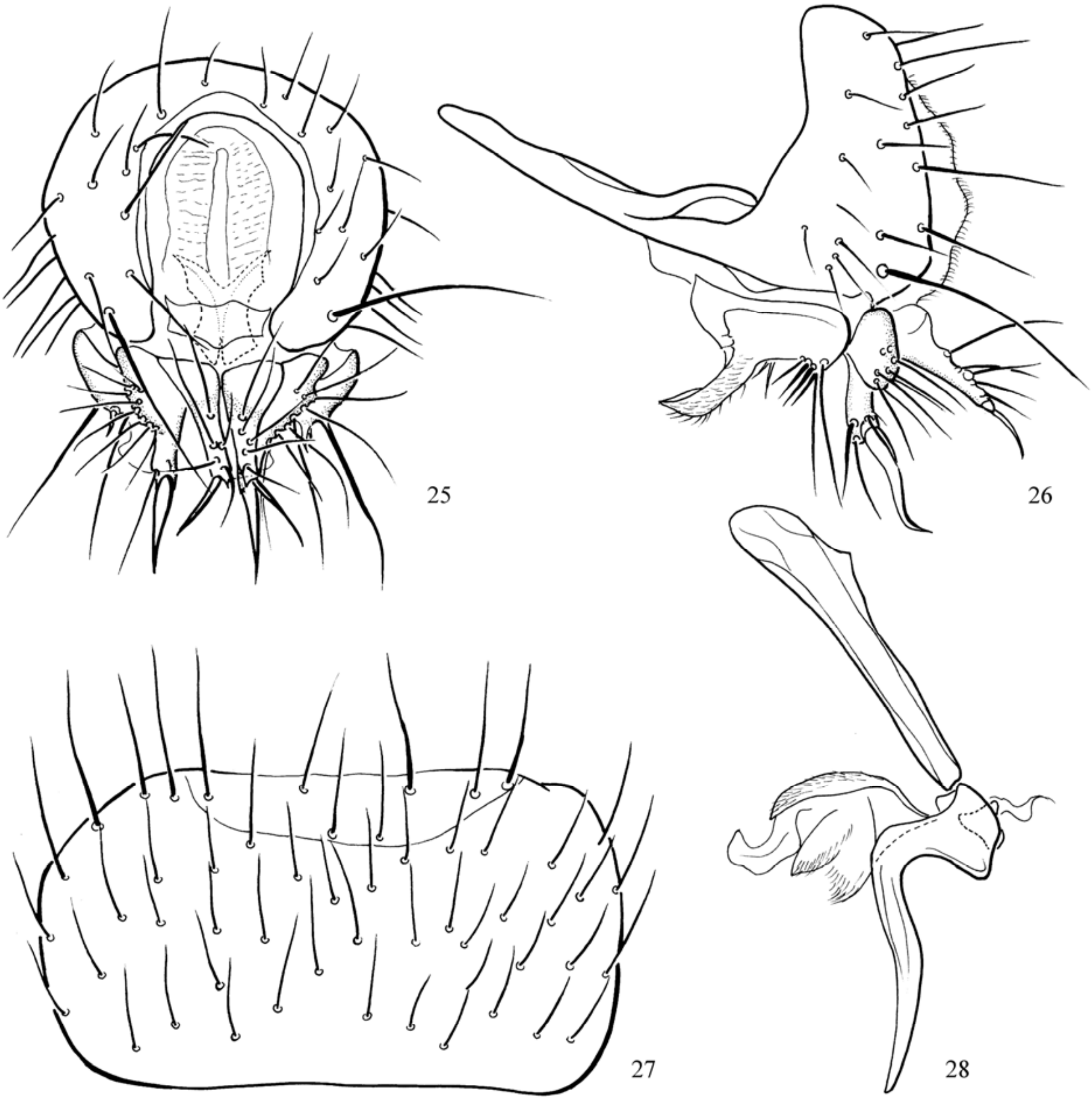
Leptocera spinisquama Su, 2011: 59.

Distribution. China (Jilin).

***Leptocera truncata* Su, 2011** (Figs 25–32)

Leptocera truncata Su, 2011: 60.

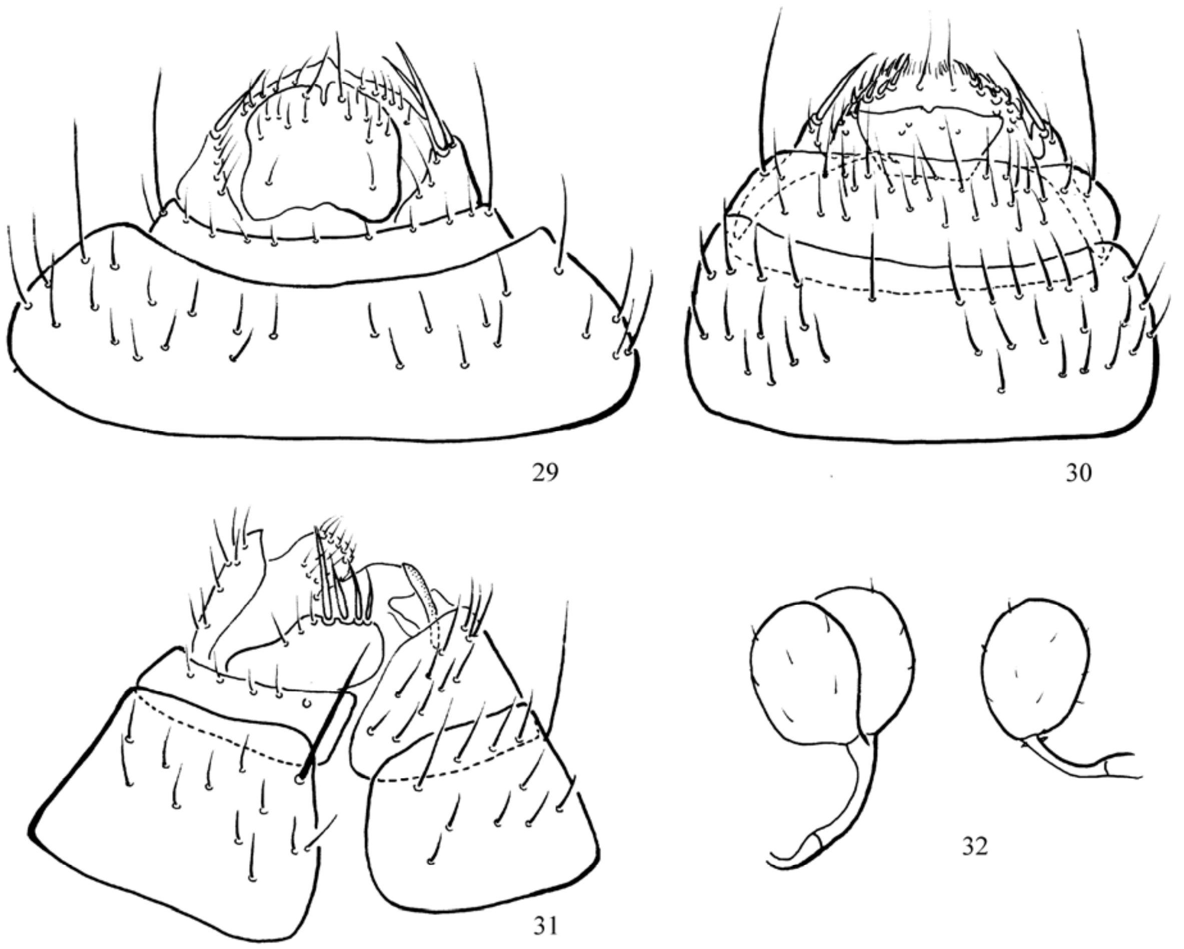
Material examined. 3♂, 1♀, Beijing, Mentougou, Longmenjian, 2005 July 6, Xing-Yue Liu; 1♂, 3♀, Beijing, Mentougou, Longmenjian, 2005 July 6, Hui Dong; 1♂, Beijing, Miyun, Yunmengshan, 2006 July 6, Shan Huo; 1♂, 1♀, Shaanxi, Foping, Dadianzi, 2006 July 25, Ya-Jun Zhu; 1♂, Shaanxi, Foping, Liangfengya, 2006 July 26, Ya-Jun Zhu; 9♂, 3♀, Shaanxi, Yangxian, Changqing, Shanshuping, 2006 July 29, Ya-Jun Zhu; 1♂, Shaanxi, Yangxian, Shanwangmiao, 2006 July 30, Ya-Jun Zhu; 1♂, Henan, Neixiang, Baotianman, 2004 July 24, Hui Dong; 3♂, 1♀, Henan, Neixiang, Baotianman, 2004 August 14, Jun-Hua Zhang; 1♀, Henan, Songxian, Tianchishan, 1 300–1 500 m, 2004 July 13, Kui-Yan Zhang; 1♀, Henan, Luoyang, Yiyang, Huaguoshan, 2006 August 3, Jun-Hua Zhang; 2♂, 1♀, Sichuan, Emeishan, 1998 August, Ding Yang; 3♂, Sichuan, Qingchengshan, 1998 August 20, Ding Yang; 1♂, 1♀, Sichuan, Qingchengshan, 1998 August 22, Ding Yang; 2♂, 4♀, Guizhou, Dashahe, Qianfeng, 1 300–1 550 m, 2004 August 18, Yan-Jun Zhu; 2♂, 2♀, Guizhou, Dashahe, Qianfeng,



Figs 25–28. *Leptocera truncata* Su, male. 25. Genitalia, caudal view. 26. Genitalia excluding aedeagal complex, lateral view. 27. Sternite 5. 28. Aedeagal complex, lateral view.

1300–1550 m, 2004 August 19, Yan-Jun Zhu; 1♀, Yunnan, Xishuangbanna, Yexianggu, 1999 April 5, Ding Yang; 1♂, 5♀, Yunnan, Xishuangbanna, Yexianggu, 2006 May 26, Jun-Hua Zhang; 1♂, 1♀, Yunnan, Pingbian, Daweishan, Shuiweicheng, 2006 May 15, Shan Huo; 12♂, Yunnan, Jinping, Fenshuiling Conservation Center, 2006 May 19, Shan Huo; 5♂, 4♀, Yunnan, Jinping, Fenshuiling Conservation Center, 2006 May 19, Jun-Hua Zhang; 1♂, 1♀, Yunnan, Tengchong, Zizhicun, 2006 May 19, Xing-Yue Liu; 2♂, Yunnan, Tengchong, Jietouxiang, 1500 m, 2006 May 17, Yan-Jun Zhu; 1♂, 1♀, Yunnan, Tengchong, Jietouxiang, 2006 July 12, Light trap, Kuiyang Zhang; 6♂, Yunnan, Lvchun, Huanglianshan, Yakou Station, 2006 May 23, Shan Huo; 1♀, Yunnan, Mengla, Yaoqu, Leigongshan, 2006 June 5, Jun-Hua Zhang; 1♀, Yunnan, Mengla, Wangtianshu, 2005 May 3, Jian-Xin Cui; 8♂, 1♀, Yunnan, Mengla, Wangtianshu, 2006 June 1, Shan Huo; 7♂, 3♀, Yunnan, Jinping, Dazhai, 2006 May 17, Jun-Hua Zhang; 1♀, Yunnan, Longling, Xiaoheishan Station, 1800 m, 2006 May 15, Ya-Jun Zhu; 1♀, Yunnan, Longling, Xiaoheishan Station, 1800 m, 2006 May 16, Ya-Jun Zhu; 3♂, Yunnan, Jietou, Shabacun, 2006 May 18, Ya-Jun Zhu; 5♂, 5♀, Yunnan, Baoshan, Baihualing Hot Spring, 2006 May 23, Xing-Yue Liu; 9♂, 4♀, Yunnan, Baoshan, Baihualing Hot Spring, 2006 May 23, Ya-Jun Zhu; 1♂, 2♀, Yunnan, Baoshan, Baihualing, Jiujiezi, 2006 May 24, Ya-Jun Zhu; 3♂, 3♀, Yunnan, Baoshan, Baihualing, 2006 May 23, Ya-Jun Zhu; 1♂, 2♀, Yunnan, Tengchong, Zizhicun, Dazhuba, 2006 May 18, Ya-Jun Zhu; 2♂, Yunnan, Lushui, Yaojiaping, 2 500 m, 2006 May 25, Xing-Yue Liu; 4♂, 6♀, Fujian, Meihuashan, Qiushan, 2006 August 31, Hui Dong; 2♂, Fujian, Longqishan, Yujiaping, 2006 August 26, Hui Dong; 1♂, Fujian, Wuyishan, Dazhulan, 2006 August 20, Xian Zhou; 3♂, 1♀, Guangxi, Huaping, Guangfuding, 2006 August 2, Yin-Xia Liao; 4♂, 5♀, Guangxi, Shansi, Pinglongshan, 2006 May 22, Yin-Xia Liao; 1♂, 2♀, Guangxi, Dayaoshan, Tiantangshan Station, 2006 September 10, Yin-Xia Liao.

Distribution. China (Jilin, Beijing, Henan, Shaanxi, Sichuan, Yunnan, Fujian, Guangxi).



Figs 29–32. *Leptocera truncata* Su, female. 29. Postabdomen, dorsal view. 30. Postabdomen, ventral view. 31. Postabdomen, lateral view. 32. Spermathecae.

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References

Buck, M. and Marshall, S. A. 2009. Revision of New World *Leptocera* Olivier (Diptera, Sphaeroceridae). *Zootaxa*, 2 039: 1–139.

Cumming, J. M. and Wood, D. M. 2009. Adult morphology and terminology. *In*: Brown, B. V., Borkent, A., Cumming, J. M., Wood, D. M., Woodley, N. E. and Zumbado, M. A. (eds.), Manual of Central American Diptera. Vol. 1. NRC Research Press, Ottawa. pp. 9–50.

Duda, O. 1924. Berichtigungen zur Revision der europäischen Arten der Gattung *Limosina* Macq. (Dipteren), nebst Beschreibung von sechs neuen Arten. *Verhandlungen der zoologisch-botanischen Gesellschaft in Wien*, 73(1923): 163–180.

Duda, O. 1925. Die auβlereuropäischen Arten der Gattung *Leptocera* Olivier– Limosina Macquart (Dipteren) mit Berücksichtigung der europäischen Arten. *Archiv für Naturgeschichte*, Berlin, Abteilung A, 90(11)(1924): 5–215.

Enderlein, G. 1938. 60. Die Dipterenfauna der Juan-Fernandez-Inseln und der Oster-Insel. *In*: Skottsberg, C. (ed.), The natural history of Juan Fernández and Easter Island, 3 (Zool.). Uppsala. pp. 643–680.

Fallén, C. F. 1826. Supplementum Dipterorum Sveciae. Consentiente Ampl. Fac. Phil. Lund. In Lyceo Carolinodie XIII Dec. MDCCCXXVI. (Part. II.). Berlingiana, Londini Gothorum (= Lund). pp. 9–16.

Macquart, J. 1835. Histoire naturelle des Insectes.Diptères. Collection des suites à Buffon. Vol. 2. N. E. Roret, Paris. 710 pp.

Meijere, J. C. H. de 1914. Studien über südostasiatische Dipteren. IX. *Tijdschrift voor Entomologie*, 57: 137–275.

Olivier, G. A. 1813. Première mémoire sur quelques Insectes qui attaquent les céréales. *Mémoires de la Société d' Agriculture du Département de Seine-et-Oise*, 16: 477–495.

Papp, L. 1984. Family Sphaeroceridae (Borboridae). *In*: Soós, Á. and Papp, L. (eds.), Catalogue of Palaearctic Diptera. Vol.10. Akadémiai Kiadó, Budapest. pp. 68–107.

Richards, O. W. 1930. The British species of Sphaeroceridae (Borboridae, Diptera). *Proceedings of the Zoological Society of London*, 1930: 261–345.

Roháček, J. 1982. Revision of the subgenus *Leptocera* (s.str.) of Europe (Diptera, Sphaeroceridae). *Entomologische Abhandlungen, Staatliches Museum für Tierkunde in Dresden*, 46(1): 1–44.

Roháček, J. 1983. Oriental species of the *Leptocera* (*Leptocera*) *nigra*-group (Diptera, Sphaeroceridae). *Acta Entomologica Bohemoslovaca*, 80: 37–148.

Roháček, J. 1993. New species and records of *Leptocera* Olivier (Diptera, Sphaeroceridae) from Palaearctic Asia, with taxonomic notes. *Časopis Slezského zemského Muzea, Opava* (A), 42: 97–121.

Roháček, J. and Papp, L. 1983. Revision of the East Palaearctic species of the *Leptocera* (s.str.) *fontinalis*-group (Diptera, Sphaeroceridae). *Annales Historico-Naturales Musei Nationalis Hungarici, Budapest*, 75: 211–227.

Rondani, C. 1880. Species italicae ordinis dipterorum (Muscaria Rndn.) collectae et observatae. Stirps XXV. Copromyzinae Zett. *Bullettino della Società Entomologica Italiana*, 12: 3–45. (Also published separately: 45 pp., Cenniniana, Firenze).

Stenhammar, C. 1855. Skandinaviens Copromyzine granskade och beskrifne. *Kongliga Vetenskaps-Akademiens Handlingar, Stockholm* (ser. 3), 1853: 257–442. (Also published separately: Copromyzinae Scandinaviae. Recognovit et disposuit. 184 pp., P. A. Norstedt & Filii, Holmiae (= Stockholm)).

Su, L-X 2011. Lesser Dung Flies. Liaoning University Press, Shenyang, China. 229 pp.

Vanschuytbroeck, P. 1959. Sphaerocerinae, Limosinae, Ceropterinae (Diptera, Ephydroidea). *Parc National de la Garamba, Mission H. de Saeger* (1949–52), Bruxelles, 17(2): 15–85.